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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/521,746

01/19/2005

Tatsu Kobayakawa

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7590

08/04/2006

REED SMITH LLP

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EXAMINER

LARKIN, DANIEL SEAN

ART UNIT

PAPER NUMBER

2856

DATE MAILED: 08/04/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>		<b>Applicant(s)</b>	
	10/521,746		KOBAYAKAWA ET AL.	
	<b>Examiner</b>		<b>Art Unit</b>	
	Daniel S. Larkin		2856	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-3 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                                   | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. ____   |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>19 January 2005</u> .   | 6) <input type="checkbox"/> Other: ____                                     |

## DETAILED ACTION

### *Priority*

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### *Specification*

2. The spacing of the lines of the specification is such as to make reading difficult. New application papers with lines 1½ or double spaced on good quality paper are required.

3. The disclosure is objected to because of the following informalities:

Page 1, text line 18: A -- comma -- should be inserted prior to the term "such" and after the second occurrence of the term "wave".

Page 1, text line 25: The term "was" should be corrected to read -- is --.

Page 2, line 2: The term "measuring" should be corrected to read -- measurement --; the phrase "in the case of" should be corrected to read -- when --; and the article "an" should be deleted.

Page 2, line 3: the verb -- is -- should be inserted prior to the term "less".

Page 2, line 34: The phrase "described in claim 1" should be deleted.

Page 3, lines 15 and 30: The phrase -- an indication of -- should be inserted prior to the term "change".

Page 3, line 16: The phrase "described in claim 3" should be deleted.

Page 3, line 27: The term "processing" should be corrected to read  
-- process --.

Page 6, line 17: The term "processing" should be corrected to read  
-- process --.

Page 6, line 19: The article -- a -- should be inserted after the term "make".

Page 6, line 31: The phrase -- an indication of -- should be inserted  
prior to the term "change".

Page 7, line 17: The term "for" should be corrected to read -- to --; or the term  
"maintain" should be corrected to read -- maintaining --.

Page 8, line 4: The term "vibration" should be corrected to read -- vibrating --.

Page 8, line 5: The term "describe" should be corrected to read -- described --.

Page 8, line 23: A -- comma -- should be inserted prior to the term "such" and  
after the term "averaging".

Page 8, line 34: A -- comma -- should be inserted prior to the term "for" and after  
the term "example".

Page 9, line 1: The phrase "is flown" should be corrected to read -- flows --.

Page 10, line 10: The phrase "are flown" should be corrected to read -- flow --.

Page 10, line 19: A -- comma -- should be inserted prior to the term "such" and  
after the term "averaging".

Page 11, line 1: The term "CLAIMS" should be corrected with a phrase similar to  
-- What Is Claimed Is: -- or -- What We Claim Is: --. Appropriate correction is required.

***Claim Objections***

4. The claims are objected to because the lines are crowded too closely together, making reading difficult. Substitute claims with lines one and one-half or double spaced on good quality paper are required. See 37 CFR 1.52(b).

5. Claims 1-3 are objected to because of the following informalities:

Re claim 1, claim line 13: The term "processing" should be corrected to read -- process --.

Re claim 1, claim line 16: The phrase -- an indication of -- should be inserted prior to the term "change".

Re claim 3, claim line 12: The term "processing" should be corrected to read -- process --.

Re claim 3, claim line 16: The phrase -- an indication of -- should be inserted prior to the term "change". Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

6. Claims 1-3 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Re claim 1, claim lines 6 and 7: How does the ultrasonic wave receiving means

convert the ultrasonic wave transmitted through the gas in the measurement region,  
when claim lines 3-5 fail to disclose that an ultrasonic wave is transmitted through a gas  
in a measurement region?

Re claim 1, claim lines 6 and 7: The phrase "the ultrasonic wave transmitted  
*through the gas in the measurement region*" lacks antecedent basis.

Re claim 1, claim lines 9 and 10: The phrase "the signal output time" lacks  
antecedent basis.

Re claim 1, claim line 13: The phrase "the threshold fall time" lacks antecedent  
basis.

Re claim 3, claim lines 6 and 7: How does the ultrasonic wave receiving means  
convert the ultrasonic wave transmitted through the gas in the measurement region,  
when claim lines 3-5 fail to disclose that an ultrasonic wave is transmitted through a gas  
in a measurement region?

Re claim 1, claim lines 6 and 7: The phrase "the ultrasonic wave transmitted  
*through the gas in the measurement region*" lacks antecedent basis.

Re claim 1, claim line 9: The phrase "the signal output time" lacks antecedent  
basis.

Re claim 1, claim line 12: The phrase "the threshold fall time" lacks antecedent  
basis.

***Allowable Subject Matter***

7. The following is a statement of reasons for the indication of allowable subject matter:

Prior art was not relied upon to reject claims 1-3 because the prior art fails to teach and/or make obvious the following:

Claims 1 and 2: Providing a gas concentration measurement apparatus, comprising: gas concentration measuring means for measuring a signal output time when an ultrasonic wave generation signal is outputted, generating an envelope processing signal by subjecting an ultrasonic wave reception signal to an envelope extracting process, measuring a threshold fall time when the envelope processing signal decreases below a predetermined threshold after exceeding the threshold, and measuring the difference between the threshold fall time and the signal output time as a change in the gas concentration in combination with all of the remaining limitations of the claim.

Claim 3: Providing a gas concentration measurement method, comprising the steps of: measuring a signal output time when an ultrasonic wave generation signal is outputted, generating an envelope processing signal by subjecting an ultrasonic wave reception signal to an envelope extracting process, measuring a threshold fall time when the envelope processing signal decreases below a predetermined threshold after exceeding the threshold, and measuring the difference between the threshold fall time and the signal output time as a change in the gas concentration in combination with all of the remaining limitations of the claim.

***Conclusion***

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel S. Larkin whose telephone number is 571-272-2198. The examiner can normally be reached on 8:00 AM - 5:00 PM Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams can be reached on 571-272-2208. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Daniel Larkin  
AU 2856  
01 August 2006

  
DANIEL S. LARKIN  
PRIMARY EXAMINER